

BIG RIVERS CATFISH ASSESSMENT



PROJECT SUMMARY

Fisheries Research

Studies of blue catfish and flathead catfish in the Missouri and Mississippi rivers (big rivers) were prompted by concerns from some anglers about overharvest and inadequate harvest regulations. During 2015 to 2019 blue catfish and flathead catfish fisheries on big rivers were evaluated to estimate exploitation and population demographics. Our studies confirmed that current management approaches support healthy and sustainable populations, and regulation changes do not appear to be necessary to prevent overfishing, which was not evident. However, various harvest regulations were modeled to determine their impact on yield and the number of large fish in the population. Opportunities to manage these catfish populations to better meet the desires of some fishers who prefer to catch larger fish (i.e., size favored over yield) were identified.

POPULATION DEMOGRAPHICS: Electrofishing was used to capture catfish; all catfish were measured, and some were weighed and aged.

- Blue Catfish:
 - o 6,639 captured (size range: 3-53 inches)
 - o 1,874 aged (age range: 1-19 years)
- Flathead Catfish:
 - o 8,395 captured (size range: 2-50 inches)
 - o 2,114 aged (age range: 1-24 years)

In the past, Missouri catfish anglers considered a 20-pound blue catfish or flathead catfish to be a ‘trophy’. Catfish larger than 20 lbs. (greater than 38” for blue catfish (Table 1) and greater than 36” for flathead catfish (Table 2)) are referred to as ‘large’ here.

Table 1. Average age for **blue catfish** to reach various lengths and weights.

Length (inches)	Weight (pounds)	Age to reach size	
		Mississippi River	Missouri River
15	1	4	5
18	2	5	6
24	5	8	9
30	10	11	12
38	20	17	18

Table 2. Average age for **flathead catfish** to reach various lengths and weights.

Length (inches)	Weight (pounds)	Age to reach size	
		Mississippi River	Missouri River
14	1	4	4
18	2	5	5
24	5	8	7
30	10	12	10
36	20	17	13

EXPLOITATION AND MORTALITY: Reward tags were affixed to blue catfish (Table 3.) and flathead catfish (Table 4.) to determine exploitation rates, which is the proportion of fish in a population that are being harvested. Multiple reward values were used to estimate tag reporting rates.

Table 3. Number of **blue catfish** tagged, number of tags reported by fishers within one year of tagging, and estimated exploitation rate.

River	# Tagged	# of Tags Reported		Exploitation
		Fish Kept	Fish Released	
Mississippi River	759	66	8	10%
Missouri River	915	76	21	12.7%

Table 4. Number of **flathead catfish** tagged, number of tags reported by fishers within one year of tagging, and estimated exploitation rate.

River	# Tagged	# of Tags Reported		Exploitation
		Fish Kept	Fish Released	
Mississippi River	836	61	11	10%
Missouri River	850	71	25	12%

HARVEST REGULATIONS: Minimum length limits (MLL) (18", 21", and 24") were predicted to improve both yield and increase the number of large catfish in some situations and to varying degrees. On the Mississippi River, an 18" minimum length limit was the only regulation modeled that increased yield for both species (Figures 1 - 4). On the Missouri River, 18", 21", and 24" MLLs each increased yield with the greatest improvement being with a 24" MLL for blue catfish and a 21" MLL for flathead catfish (Figures 5 - 8). In most cases, a decreased daily bag limit for catfish greater than 30" (1-Over 30") was predicted to decrease yield unacceptably or did not increase the number of large fish more than MLLs.

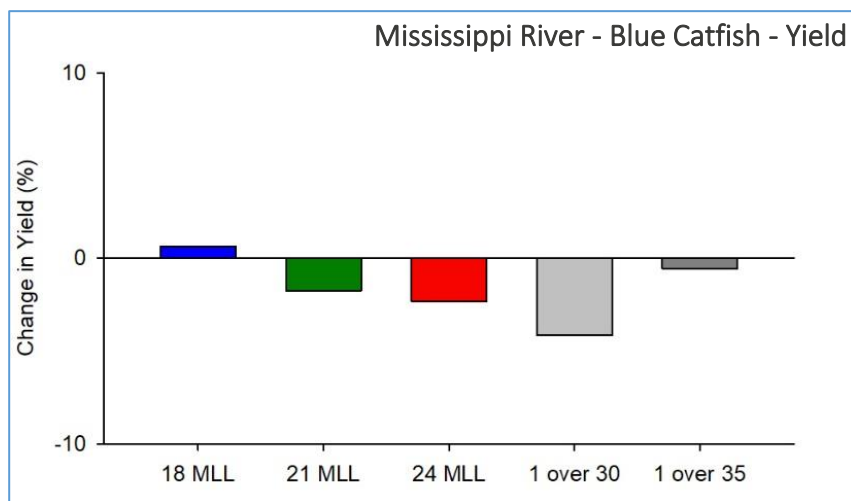


Figure 1. Percent change in yield of Mississippi River blue catfish under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

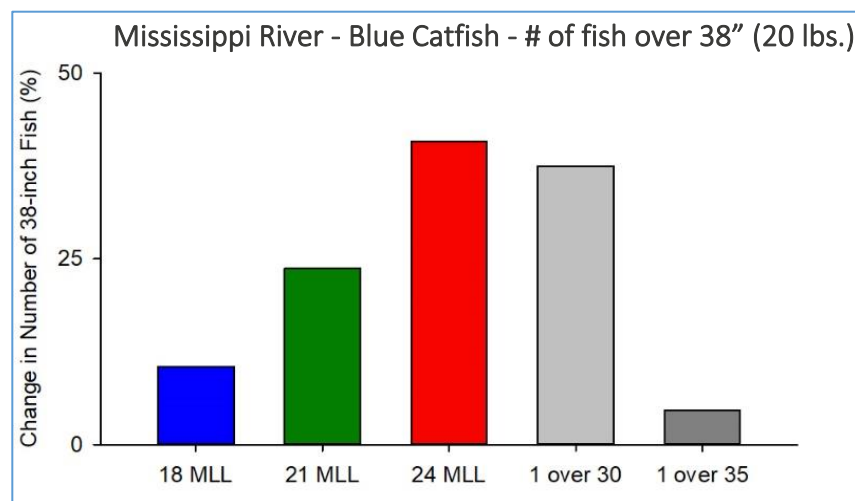


Figure 2. Percent change in the number of Mississippi River blue catfish over 38" (20 lbs.) under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

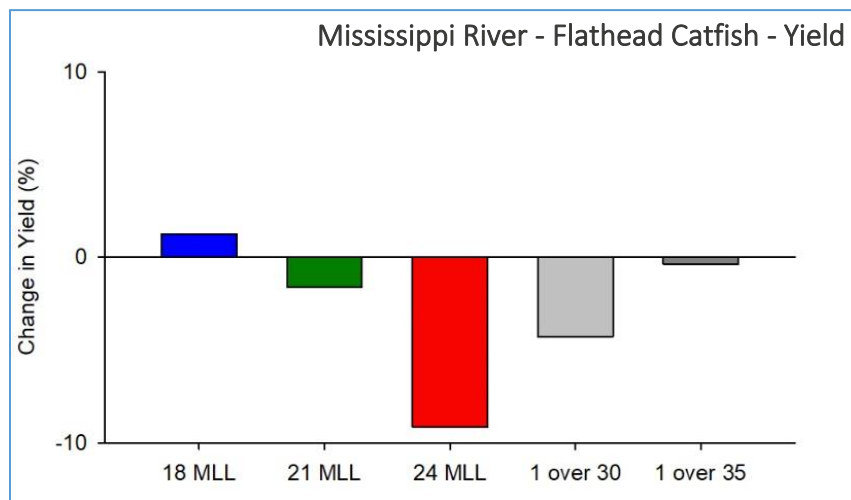


Figure 3. Percent change in yield of Mississippi River flathead catfish under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

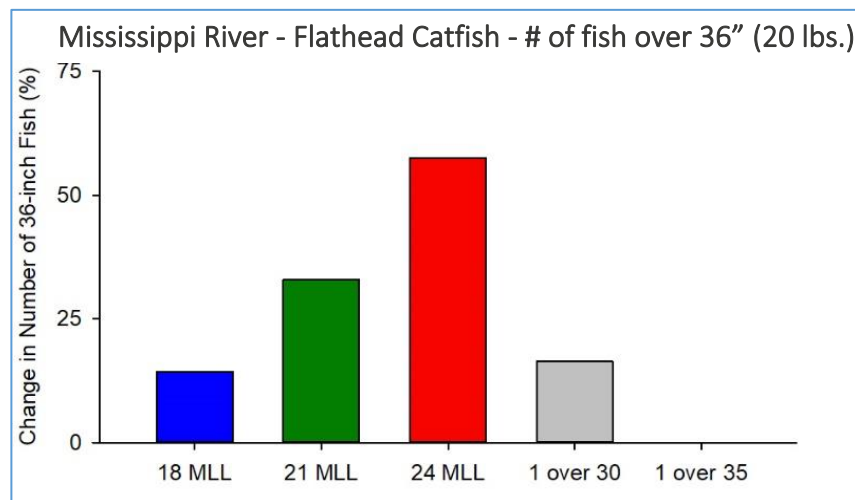


Figure 4. Percent change in the number of Mississippi River flathead catfish over 36" (20 lbs.) under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

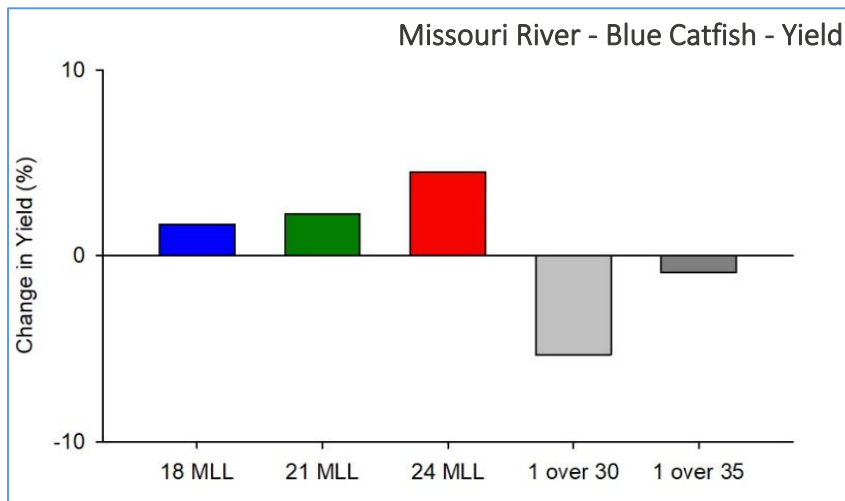


Figure 5. Percent change in yield of Missouri River blue catfish under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

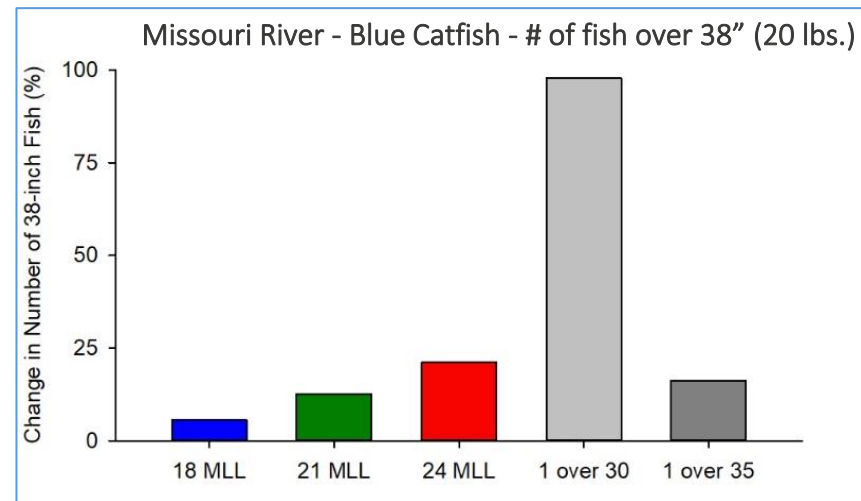


Figure 6. Percent change in the number of Missouri River blue catfish over 38" (20 lbs.) under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

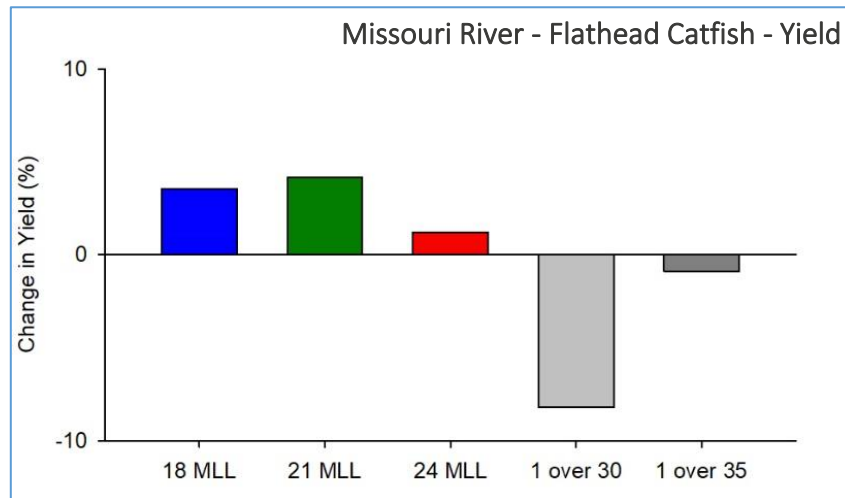


Figure 7. Percent change in yield of Missouri River flathead catfish under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

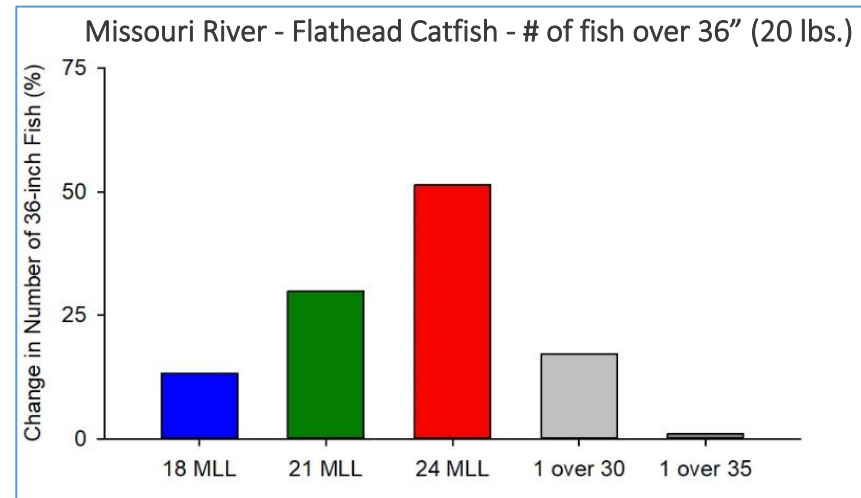


Figure 8. Percent change in the number of Missouri River flathead catfish over 36" (20 lbs.) under various regulations including 18", 21", and 24" minimum length limits (MLL) and 1-over 30" and 35" daily bag limits.

Public Questionnaire

A questionnaire was offered publicly during the summer of 2021. The objective was to determine the preferences of Mississippi and Missouri rivers (big rivers) catfish anglers and commercial fishers related to catfish fishing, management, and regulation.

An electronic questionnaire was sent to all Missouri residents licensed to fish and with an email address on file (447,405 sport anglers and 123 commercial fishers). Of those who responded to the questionnaire, 7,621 sport anglers and 26 commercial fishers indicated that they fished for blue catfish and/or flathead catfish on big rivers.

Among sport angler respondents, 70.8% said they fished for catfish which ranked third in popularity behind crappie (83.1%) and largemouth bass (79.8%) (Figure 9). All 26 commercial fishing respondents indicated that they fished for catfish (Figure 10). Most sport anglers fished small lakes (59%), small rivers (37%), Lake of the Ozarks (28%), and big rivers (Missouri and/or Mississippi rivers; 27%) (Figure 11). Commercial fishers preferred the Mississippi River (92%) over the lower St. Francis River (8%) (the only two waterbodies in the state open to commercial catfish harvest) (Figure 12).

Those who fished for catfish on big rivers were asked questions about their motives and preferences.

The majority of sport anglers (50-51%) and commercial fishers (68%) indicated that the *size and number of catfish caught were equally important* (Figures 13 - 15).

More sport anglers (42-43%) and commercial fishers (68%) indicated that *catching catfish to eat* was more important than *catching a trophy sized fish* (Figures 16 - 18).

More sport anglers (26-32%) preferred to catch and keep intermediate numbers and weights of catfish (*four 5-pound catfish*), while commercial fishers preferred larger flathead catfish (*two 10-pound catfish*) and had varied preferences for blue catfish (Figures 19 - 21).

A majority of sport anglers (54-68%) and commercial fishers (68%) indicated they would keep catfish less than 18 inches, while 76-79% of sport anglers and 84% of commercial fishers indicated they would keep catfish less than 24 inches (Figures 22 - 24).

Sport anglers were split in support or opposition to a '1-over' rule (only one blue catfish over 30" may be kept as part of the 5-fish daily bag limit). More sport anglers supported (38-40%) a '1-over' rule for blue catfish, but more opposed (37%) a '1-over' rule for flathead catfish (Figure 25). Commercial fishers were not asked about a '1-over' rule because it was not being considered on the Mississippi River.

More sport anglers supported a minimum length limit (40-43%) than were opposed (32-34%) (Figures 26 – 27). A majority of commercial fishers were opposed (71-75%) to a minimum length limit (Figure 28).

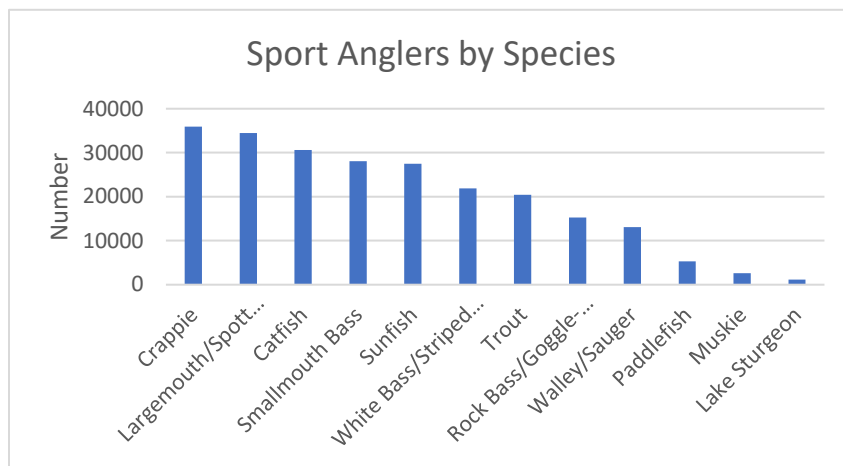


Figure 9. Number of sport fishing respondents that answered 'yes' to question: *Do you fish for each of these species?*

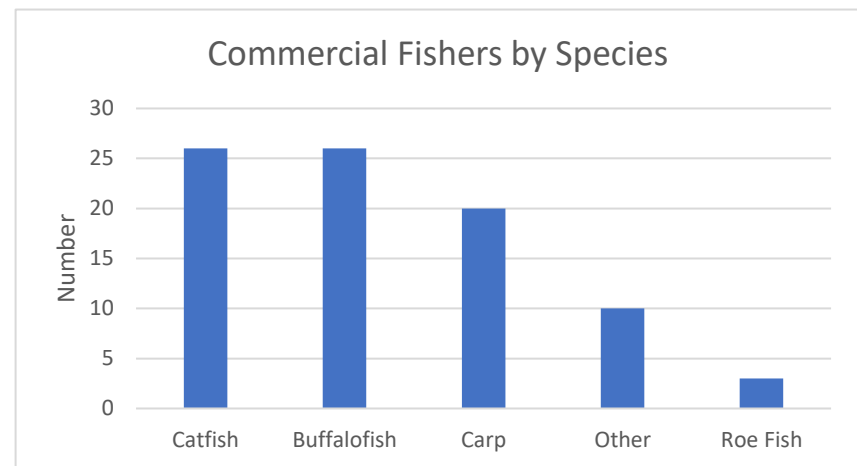


Figure 10. Number of commercial fishing respondents that answered 'yes' to question: *Do you fish for each of these species?*

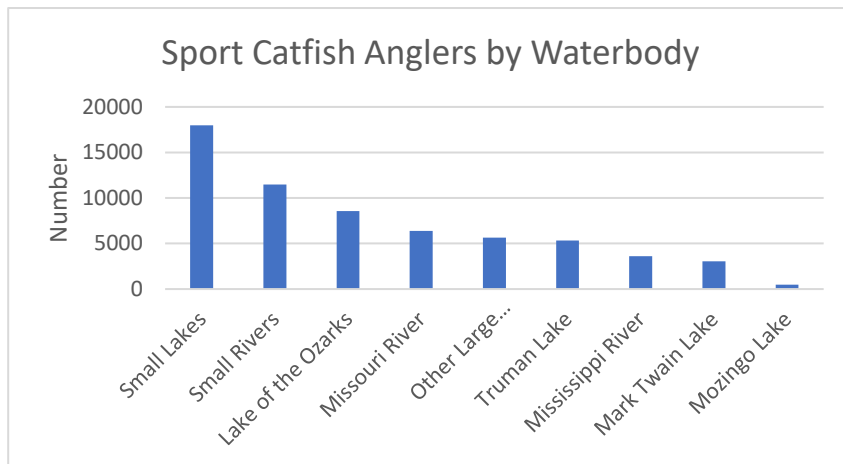


Figure 11. Number of sport fishing responses by waterbody when asked: *Where do you fish for catfish?*

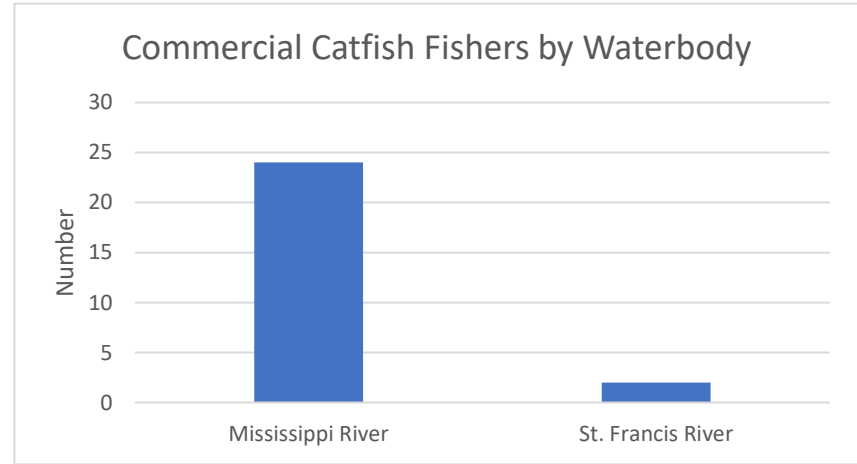


Figure 12. Number of commercial fishing responses by waterbody when asked: *Where do you fish for catfish?*

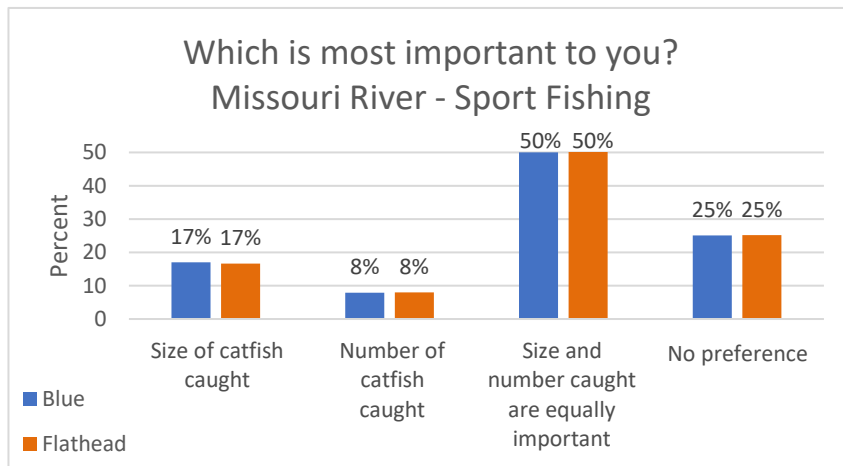


Figure 13. Percent of sport fishing respondents who indicated they fished for catfish on the Missouri River, when asked: *When fishing for catfish on the Missouri or Mississippi rivers, which is most important to you?*

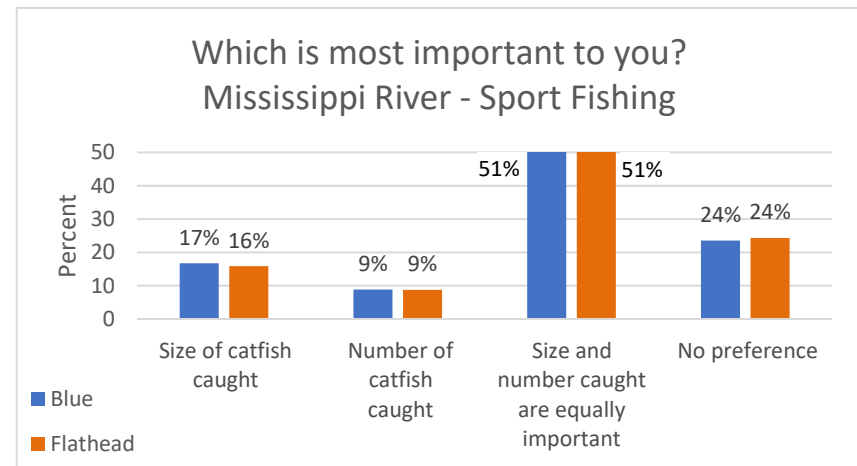


Figure 14. Percent of sport fishing respondents who indicated they fished for catfish on the Mississippi River, when asked: *When fishing for catfish on the Missouri or Mississippi rivers, which is most important to you?*

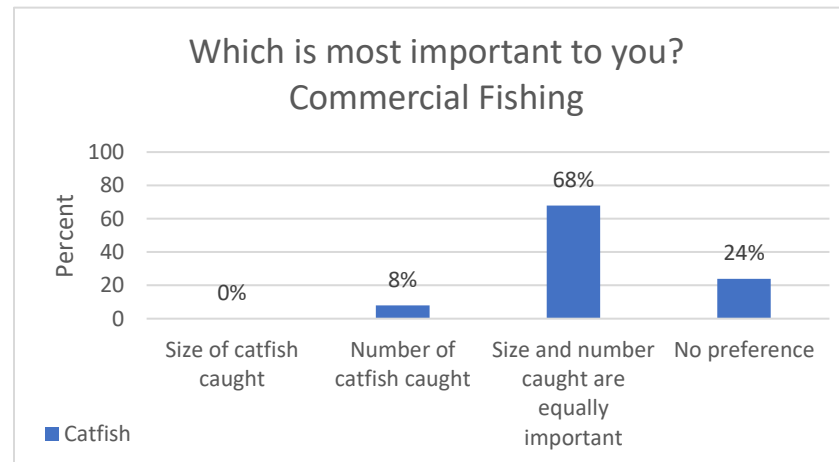


Figure 15. Percent of commercial fishing respondents who indicated they fished for catfish, when asked: *When fishing for catfish on the Mississippi or St. Francis rivers, which is most important to you?*

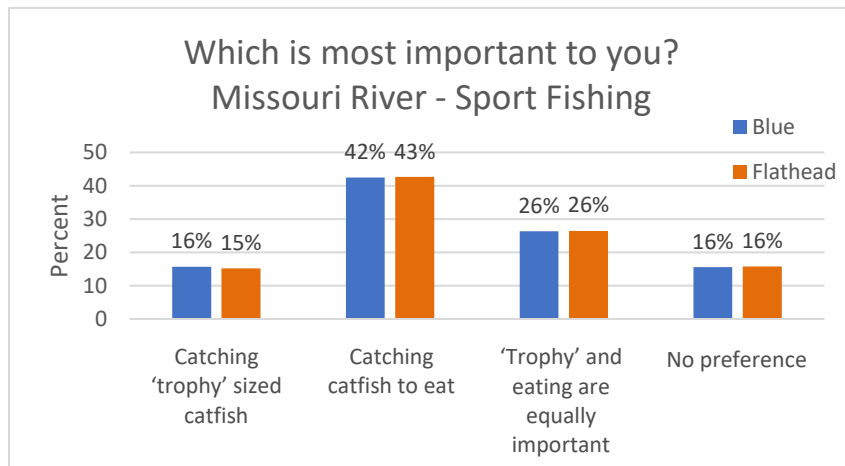


Figure 16. Percent of sport fishing respondents who indicated they fished for catfish on the Missouri River, when asked: *When fishing for catfish on the Missouri or Mississippi rivers, which is most important to you?*

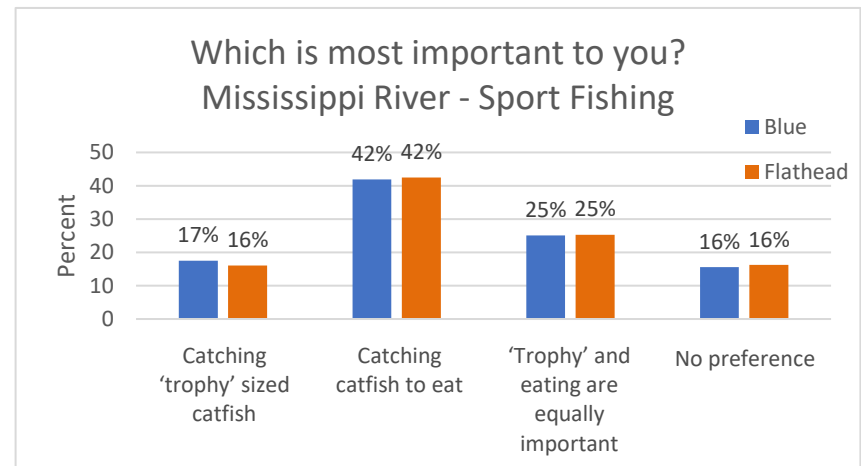


Figure 17. Percent of sport fishing respondents who indicated they fished for catfish on the Mississippi River, when asked: *When fishing for catfish on the Missouri or Mississippi rivers, which is most important to you?*

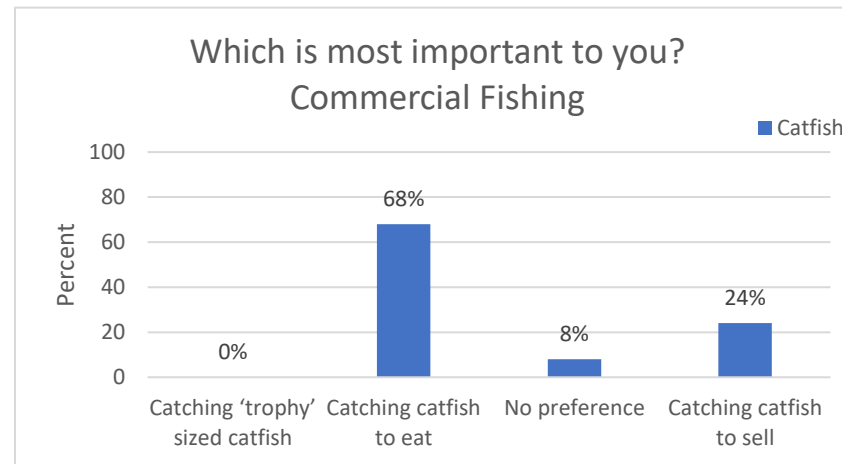


Figure 18. Percent of commercial fishing respondents who indicated they fished for catfish, when asked: *When fishing for catfish on the Mississippi or St. Francis rivers, which is most important to you?*

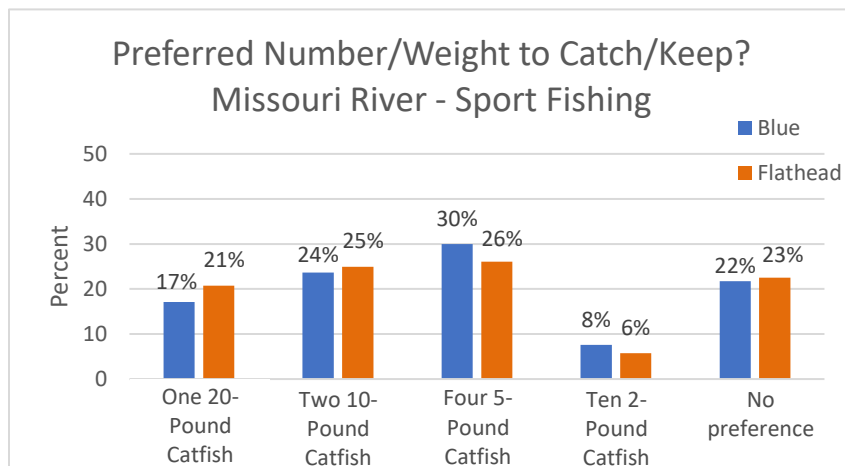


Figure 19. Percent of sport fishing respondents who indicated they fished for catfish on the Missouri River, when asked: *Which of the following scenarios best describes the number and size of blue catfish and flathead catfish you would prefer to catch and keep?*

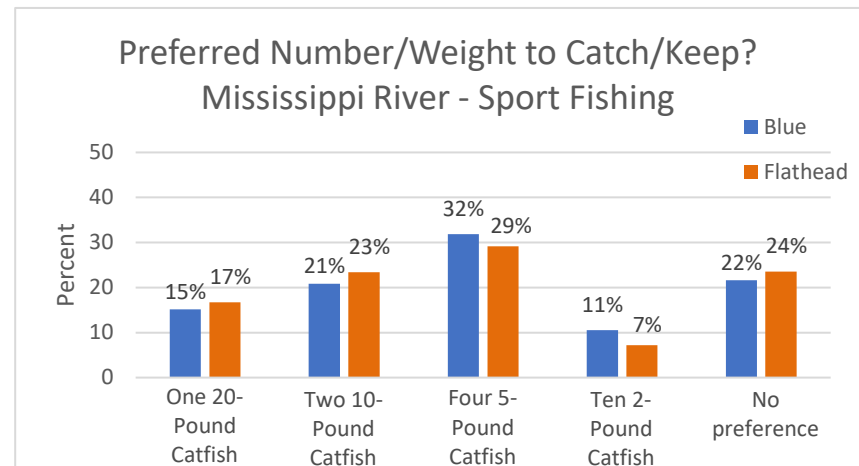


Figure 20. Percent of sport fishing respondents who indicated they fished for catfish on the Mississippi River, when asked: *Which of the following scenarios best describes the number and size of blue catfish and flathead catfish you would prefer to catch and keep?*

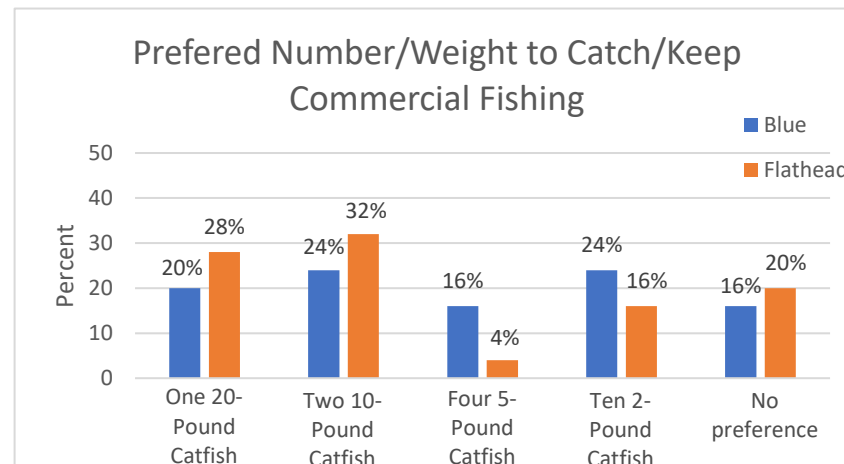


Figure 21. Percent of commercial fishing respondents who indicated they fished for catfish, when asked: *Which of the following scenarios best describes the number and size of blue catfish and flathead catfish you would prefer to catch and keep?*

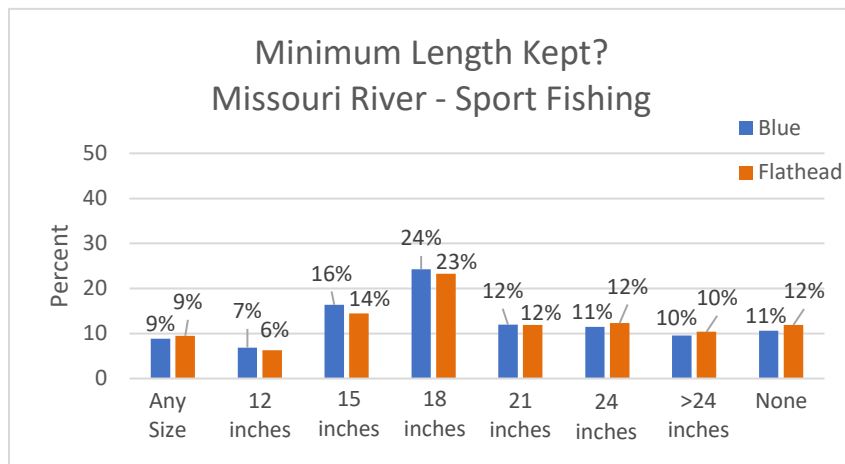


Figure 22. Percent of sport fishing respondents who indicated they fished for catfish on the Missouri River, when asked: *What is the minimum size blue catfish and flathead catfish you would keep?*

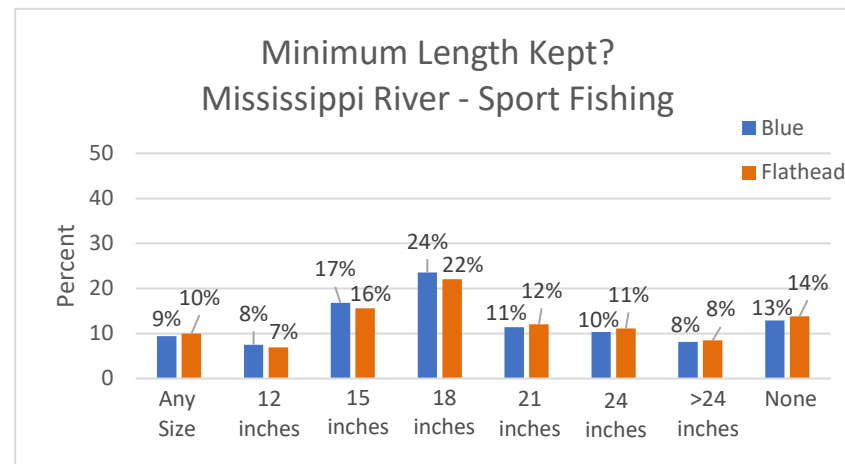


Figure 23. Percent of sport fishing respondents who indicated they fished for catfish on the Mississippi River, when asked: *What is the minimum size blue catfish and flathead catfish you would keep?*

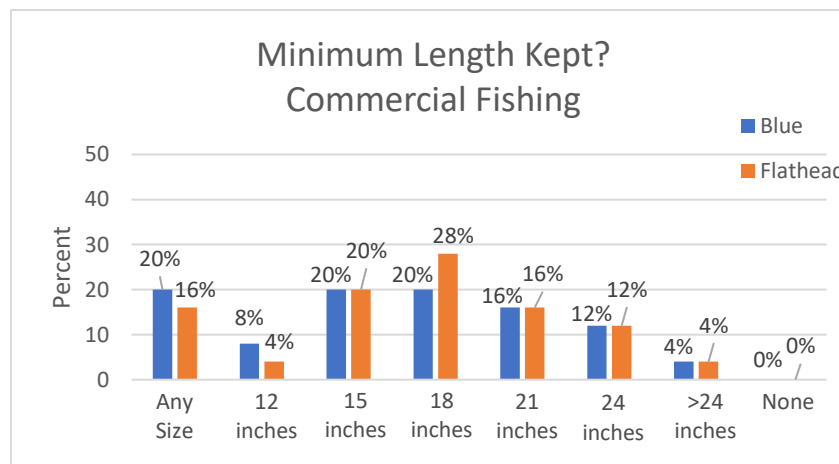


Figure 24. Percent of commercial fishing respondents who indicated they fished for catfish, when asked: *What is the minimum size blue catfish and flathead catfish you would keep?*

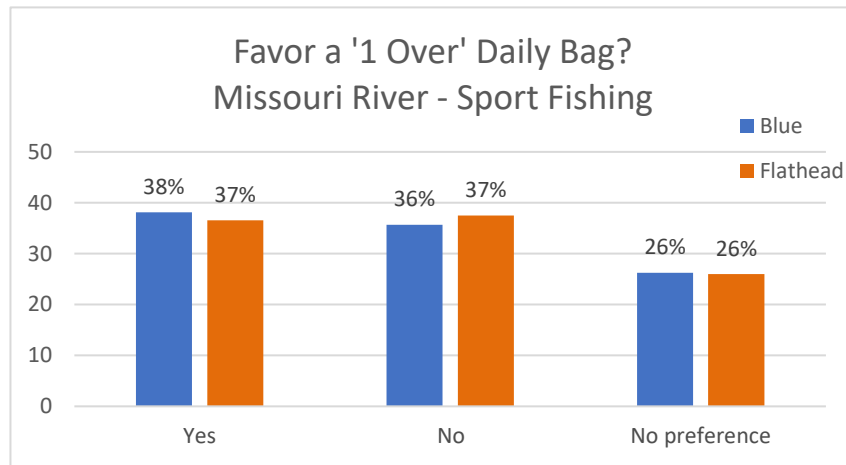


Figure 25. Percent of sport fishing respondents who indicated they fished for catfish on the Missouri River, when asked: *Would you favor a change in blue catfish and flathead catfish fishing regulations on the Missouri and Mississippi Rivers if it increases your chances of catching a trophy-sized catfish, but decreases the number of catfish you are allowed to keep?*

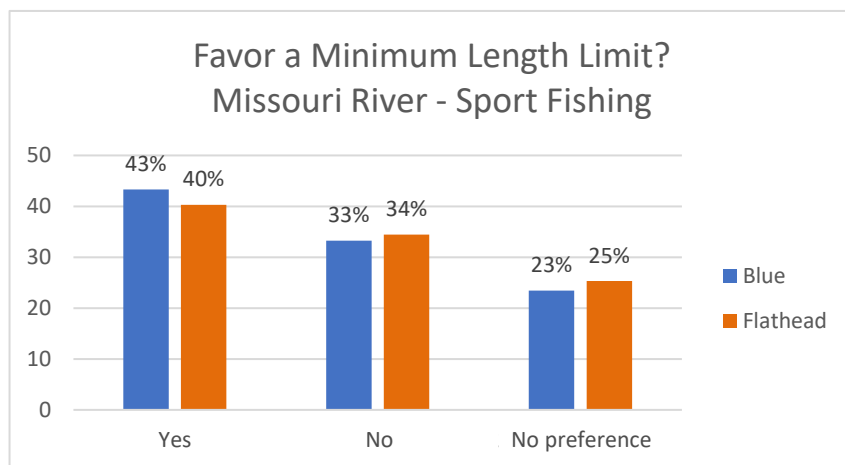


Figure 26. Percent of sport fishing respondents who indicated they fished for catfish on the Missouri River, when asked: *Would you favor a change in blue catfish and flathead catfish fishing regulations on the Missouri and Mississippi rivers if it increases your chances of catching a trophy-sized catfish, but requires you to release catfish below a specified length?*

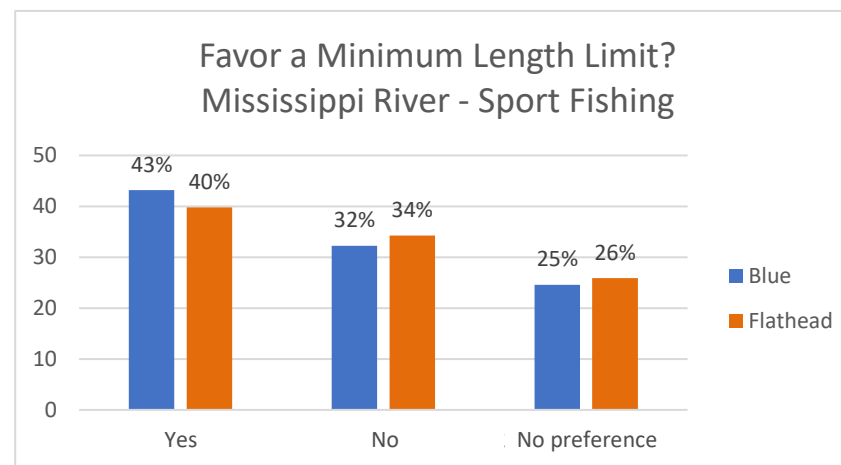


Figure 27. Percent of sport fishing respondents who indicated they fished for catfish on the Mississippi River, when asked: *Would you favor a change in blue catfish and flathead catfish fishing regulations on the Missouri and Mississippi rivers if it increases your chances of catching a trophy-sized catfish, but requires you to release catfish below a specified length?*

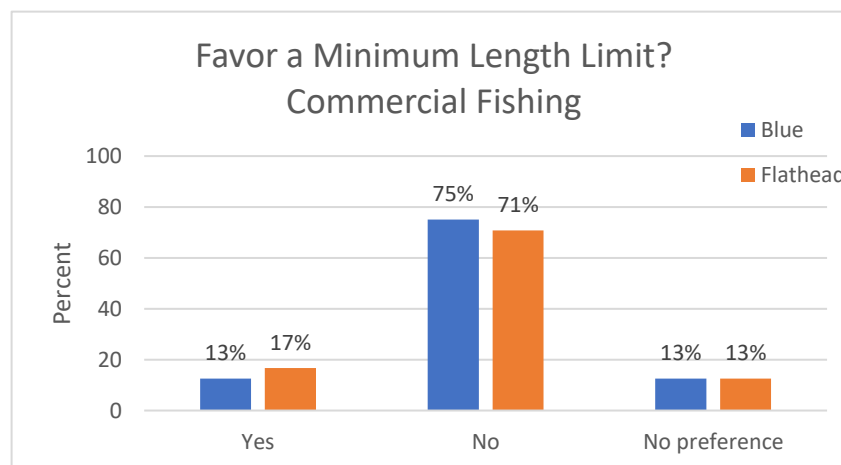


Figure 28. Percent of commercial fishing respondents who indicated they fished for catfish, when asked: *Would you favor a change in blue catfish and flathead catfish fishing regulations on the Mississippi and St. Francis rivers if it increases your chances of catching a trophy-sized catfish, but decreases the number of catfish you are allowed to keep?*

Public Comment Period

Comments were received from 330 Missouri residents and 73 non-residents on the MDC website, or via letter, email, or phone call. A list of the top themes including examples of supporting comments include:

- There was strong support for **keeping regulations as they are**.
 - *Please do not change the fishing regulations on the big rivers. If someone wants to eat these fish it is much safer to eat smaller, younger fish. It appears that this fishery is doing fine...*
 - *Since studies show there is no need for additional regulations, just keep things the way they are. IF IT AINT BROKE DON'T FIX IT!*
 - *If there is no reason to change then don't for recreational purposes. As we have seen during 2020 people depend on the river as a food supply and any size fish can feed a person or there family and making more regulations would not help the matter. Let just keep the limit size the same.*

- There was support for **banning transport of live fish out-of-state**.
 - *It should be illegal to transport live catfish over the length limit out of state. This will help with commercial fisherman taking several trophy fish from public water and selling them to pay lakes.*
 - *Even though there is a sustainable amount of fish, I would like to see harvesting and transporting trophy fish to pay lakes outlawed.*
 - *...I really think it needs to be addressed about the big fish being commercially harvested and and taken to pay lakes in ohio Illinois and Kentucky. I think mdc should prove and show to be a leader in the right direction. It's becoming a huge problem!*

- There was support for a **'1-over' rule**.
 - *Need tighter regulations on taking big fish...Limit of five total flatheads and blues with only one over 34 inches. I have fished hard on MO River in NW past five years and release everything but about 5 small eater 15 lb or under fish per year. Usually lucky if catch anything but a channel cat...*
 - *1 fish over 34 inches on a daily limit can only help the future of the fisheries especially on the river..*

- *Allowing only one fish over 30 inches to be harvested daily...would go a long ways for ensuring that these large fish continue to thrive.*
- There was support for **regulating or banning commercial catfish harvest** (note that commercial catfish harvest is allowed only on the Mississippi and lower St. Francis rivers).
 - *Since commercial fishing for catfish on Missouri River was eliminated in the 90's there has been a steady increase in catfish size and population...*
 - *My family and I love to fish on the Missouri River. Our primary reason for that is for sustenance or to eat the catfish...if the goal is to have more and larger fish then why not regulate or do away with the commercial cat fishing. Those are the ones that have the greatest effect on the population. It seems that these regulations are more towards the overall bragging of how big a fish a person caught instead of a healthy and thriving fish population...*
 - *...if fish are needing to be regulated then why not regulate the commercial end of the spectrum and not regulate the poor regular guy just out there having fun catching fish with his children and putting a few fish on the table for dinner...I don't really know the reason just seems unnecessary really.*
- There was support for MDC to **“do whatever needs to be done”**.
 - *With social media and things growing from hunting to fishing , something needs to be done on the Missouri & the Mississippi River...Something needs to be done before our rivers are destroyed...*
 - *...Do whatever increases the number and health of the catfish population in the big rivers.*
 - *Thank you for taking time to at least study catfish on our large rivers... I would support whatever you felt necessary as that is more of a purely science based thing. We love catching large (50+ lb) fish on the river and anything that can be done to improve that will bring you more tourism \$\$\$\$...*
- There was support for a **minimum length limit**.

- *I fish for both blue and flathead on the Mississippi. I support the 18" minimum length limit.*
- *I support a minimum length limit to increase the opportunity to catch larger fish.*
- *I feel setting a minimum length is a great idea. But I'm not in favor of 1 over 30". But also with that large blue cats aren't the best eating. I would like to see the length changed to 36". As for flat head I also think a minimum length should be in place. 18" or 20" would be good for both flathead and blue cats.*